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April 13, 1994

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## Final Technical Report

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NASA-Ames Agreement No. NCC 2-828  
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with Industry Initiatives for Science &amp; Math Education

During the summer of 1993, NASA-Ames scientists served as mentors to five teachers who worked as IISME Teacher Fellows over the summer. These five teachers were among 76 IISME Teacher Fellows working at various corporate and government agency sites throughout the San Francisco Bay Area. These five NASA-Ames fellowship positions are described in brief in Attachment A.

One requirement of the IISME Summer Fellowship program is that teachers develop a personal Action Plan for Classroom Transfer. These Action Plans are published in abstract form in an annual catalog. Interested parties may request full copies of any action plan. I have attached the abstracts of NASA-Ames teachers as Attachment B.

In addition, NASA-Ames hosted IISME's End of the Summer Celebration in August of 1993. This event, attended by several hundred teachers, mentors, school administrators and students featured tours of various NASA-Ames facilities/projects and demonstrations by teachers of their Action Plan projects. See Attachment C.

The ability of IISME Teacher Fellows to translate the summer experience into enriched instruction for students is at the heart of the IISME Summer Fellowship Program. For this reason, I have included as Attachment D the short essays that NASA-Ames teachers submitted as part of their applications for 1994 IISME Summer Fellowships. They speak of their continued involvement with NASA mentors (who have paid visits to classrooms and hosted groups of visiting students), of revitalizing their curricula by adding hands-on science activities drawn directly from their summer experiences, of sharing their NASA-Ames learning experiences with other teachers, and of being inspired professionally by the encouragement they received from NASA-Ames.

Please note that each of the NASA-Ames teachers felt strongly motivated to apply for another fellowship opportunity. Many professional development opportunities available to teachers do not inspire teachers to come back for more!

We feel that the partnership between IISME and NASA-Ames has yielded significant returns for local students. Three of the four NASA-Ames scientists involved in the program last year were enthusiastic enough to sign up to become mentors again this year. Finally, NASA-Ames has gained recognition for its community outreach efforts via IISME in the local media. See Attachment E.

(NASA-CR-195801) INDUSTRY  
INITIATIVES FOR SCIENCE AND MATH  
EDUCATION Final Technical Report  
(Industry Initiatives for Science  
and Math Education) 15 p

N94-71818

Unclass

1993 IISME Summer Fellowships at NASA-Ames

**NASA-Ames Research Center**

Mentor: Al Globus

Teacher: Stuart Briber

Job Requirements: Math, Science or Computer Science

Job Description: Create a video or still photo program and devise a written test to illustrate a scientific, mathematical or computer science principle for use in local schools.

**NASA-Ames Research Center**

Mentor: Al Globus

Teacher: Tug Sezen

Job Requirements: Math, Science or Computer Science

Job Description: Create a video or still photo program and devise a written test to illustrate a scientific, mathematical or computer science principle for use in local schools.

**NASA-Ames Research Center**

Mentor: Mark Siegel

Teacher: Margaret Szady

Job Requirements: IBM or Macintosh, Networking

Job Description: Provide support and materials to increase value and accessibility of networking technology to K-12 educators and students.

**NASA-Ames Research Center**

Mentor: Steve Ryan

Teacher: Robert Zafran

Job Requirements: Aerodynamics, Mainframe, IBM PC

Job Description: Design curriculum involving computational fluid dynamic simulations on a super computer for use in local secondary schools.

**NASA-Ames Research Center**

Mentor: Mark Siegel

Teacher: Rich Amlin

Job Requirements: IBM or Macintosh, Networking

Job Description: Provide support and materials to increase value and accessibility of networking technology to K-12 educators and students.

**FLUID DYNAMICS: USING ART TO AID TEACHING SCIENCE**

Stuart Briber, NASA-Ames

Subject Area: Computer modeling (fluid dynamics) and General ScienceGrade/Ability level: Grades 9-10Abstract:

Students will be able to identify gradients of different parameters. They will be able to analyze fluid flow around a shape to determine areas of low and high pressure. This Action Plan is an outline for a unit designed to convey current practice in engineering analysis. Mathematical modeling of systems carried out by computers utilizes grids to divide space and calculate results over all relevant space. Prior to use of this analysis tool, artists routinely analyzed the space occupied by their subjects. This provides a link between art and science.

**GRIDLOCK: AN IISME CURRICULUM UNIT**

Bob Zafran, NASA-Ames Research Center

Subject Area: Math, Science and ComputersGrade/Ability level: Grades 6-12Abstract:

This Action Plan is the first of several planned curriculum units in Computational Aerospace Science. This curriculum unit is an introduction to Computational Fluid Dynamics (CFD) in which students are introduced to CFD by having them replicate a graphical image using grids to encode data and then reproduce the image by decoding and plotting their data. To acquaint students with Computational Analysis and in particular CFD, a CFD Composite Video is available. It provides information on the needs and objectives for using computational analysis and clearly illustrates CFD applications. The curriculum unit includes teacher notes, student instructions and the graphics material necessary to conduct the activities.

**HYPERCARD STACKS: INTERNET RESOURCES, COMPUTER VISUALIZATION, TEACHING FLUID DYNAMICS**

Tug Sezen, Nasa-Ames NAS Division

Subject Area: Physical Science and Computer ScienceGrade/Ability level: Grades 9-12Abstract:

This Action Plan consists of Hypercard stacks to be used on the Macintosh. The subjects of these interactive stacks for students and teachers include how computer visualization is conducted, how computer logic circuits work, how images are visualized on the computer screen, how to use and navigate on the internet, lesson plans on fluid and aerodynamics, and the creation of space colonies.

**USING THE INTERNET: A TEACHER'S GUIDE**

Rich Amlin and Margaret Szady, NASA

Subject Area: All CurriculumGrade/Ability level: Grades 7-12Abstract:

This teacher's guide to using the Internet grew out of the excitement and frustration of two teachers trying to learn how to use the Internet as an educational resource. They were excited by the possibilities, but frustrated by the lack of user-friendly interfaces. They strongly believe that the Internet can be a valuable tool in K-12 education, but that they have a long way to go in making it easy to use (programs such as turbogopher and mosaic are a good start). The use of the Internet should be focused on a broad curriculum approach rather than an emphasis on just science or math. When students are exposed to the tool in a variety of classroom settings they will truly become familiar with the Internet and expect that it can help them in any setting.

The primary goal in producing this document was to create sample, step-by-step lesson plans that would enable teachers to see how they could use the Internet to accomplish specific curriculum goals. The authors list ideas for additional projects, give hints for successful Internet use, and list what they found to be the most beneficial resources available on the Net.

*You are Invited!*  
to the  
**IISME End-of-Summer Celebration  
& Reception**

**Friday, August 13, 1993  
3:00 - 6:00 p.m.  
NASA-Ames Research Center  
Rear Admiral Moffett Banquet Center  
Moffett Field (Mountain View)**

(map on reverse side)

*Help us Celebrate our Successful IISME Summer!*

**Featuring:**

***"NASA Hunts for Extraterrestrials"***

by guest speaker

**SETH SHOSTAK**

**Public Program Science Coordinator**

**SETI Institute**

(Search for Extraterrestrial Intelligence)

**\* Tours**

- Wind Tunnel
- Flight Line/Research Aircraft
- Hardshell Space Suit Testing Facility
- Kuiper Airborne Observatory (High Altitude Infrared Telescope)
- Vertical Motion Simulator

**\* Highlights of the IISME Summer**

**Please R.S.V.P. no later than Thursday, August 5, 1993.**

**Phone 510/643-6594 anytime & leave a message.**

## Section J: Personal Statement and Project Proposal

I will never give up being an English teacher. I love teaching students about literature, about themselves, and about their world. I also love to peek their intellectual curiosity, to challenge their problem solving ability, to enhance their critical thinking skills. It is this interest in higher order thinking skills that lead me to seek ways of integrating technology in my classroom instruction.

In 1983 I became the first teacher in Santa Clara County to be credentialed in "Computer Concepts and Applications" by the State. This required returning to school to complete 30 undergraduate units in Computer Science. In 1988 I piloted a course in HyperMedia in our district. In 1989 I received a Masters in Computer Education from U.S. International University. I am a member of I-CUE (Computer Using Educators) and AHUG (Apple HyperCard Users Group, Education group).

In 1990 I was asked to be the Site Coordinator for the Cupertino/Fremont Model Technology in the Schools Project (this is one of five projects funded by the State to evaluate the impact of technology on education and to model successful uses of technology in education). I agreed only if I could continue teaching two periods each day. In my role as Site Coordinator I am responsible for modeling teaching strategies that incorporate technology in instruction, training teachers from all over the state, and investigating new technology that has education applications.

I think teachers, administrators, and students respect my abilities as a teacher. I have been teacher of the year in my school, in my District, a California mentor teacher, and in 1981 I was named the "The Outstanding Young Educator in the State of California" by the California Junior Chamber of Commerce. The 1985 Yearbook dedication, which I received, read in part " '... for rigorous teachers seize our youth, purge its faith, trim its fire, and show us the high white star of truth.' Yet, at the same time, 'the true teacher defends his pupils against his own personal influence. He inspires... He guides their eyes from himself to the spirit that quickens him.' This **you** do, Mr. Amlin, giving us a challenge to meet and strive beyond."

#3 Margaret Szady and I have taken the knowledge aquired in our last fellowship and used it as the basis for a series of workshops on

Internet given to other teachers. We started by giving presentations to the other Departments in our own school and have been identified by our District Administration to be mentors and give workshops to each of the other four schools in our District. In March we will give a workshop to 22 teachers from schools outside our District as part of the State Model Technology Project. Also, in January I will give a workshop to Town Middle School in San Francisco. All of this was possible because of our IISME experience. Another fellowship will inspire us to continue "spreading the wealth" next year.

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## Personal Statement

12/1/93

Stuart Briber

My teaching career started 5 years ago. I entered education from a career as an engineer and scientific consultant in business and industry. This history plays a major role to my approach to education. In my classroom it translates into units and lessons based on actual situations encountered in business and industry. I stress the career applications possible in the different science activities we do. Students in my Space Science classes are challenged to design and build things, usually in teams of 3. For example after my IISME experience at NASA I've incorporated a unit in fluid dynamics at the 9th grade level that led to the students designing and building large glider models with the aid of a computer. A NASA engineer spoke to the students about problems in the design of aircraft. With the actual aircraft industry procedures in mind, students applied fluid dynamics principles and smoke tunnel testing. Their gliders were flown in a team vs. team competition this past month, the top performers won a field trip inside the NASA- Ames 80' x 120' wind tunnel and super computer center.

Business and industry applications in my physics class include the study of momentum and energy analysis of actual automobile accidents to see if the students concur with the analysis done by the police. Other tie-ins to industry and actual research have included students submitting samples to Intel to have scanning electron micrographs and atomic force micrographs produced. One extra-credit activity involved 2 students participating in disassembling and documenting an older model electron microscope.

My goal is to enable all students to be better able to think and problem solve on their feet and to gain skill and pride in their ability to come up with positive results working in teams with people different from themselves. My interest in changing the dynamics of the 9th grade classroom centers around ways to make the students more responsible and motivated for their own science education. This includes providing for more direct access between individual students and industry. Currently we are setting up an electronic pen-pal relationship between students and several engineers in San Jose companies via E-mail. I want to further open tele-computing channels through such things as FTP downloading of files (such as current satellite images) through the internet and remote access astronomy through a program such as that sponsored by the physics department at U.C. Santa Barbara called Astro-raps. That program has the potential to return telescope images from sky coordinates selected by the students. The challenge is to restructure the curriculum and daily routine to realize the possibilities given limited time and computer resources.

At the 11-12th grade level in physics education I feel the need is to continue to explore physics related problems encountered in actual industrial careers. This includes finding situations in industry to which these more advanced students can contribute ideas or possibly function to test new product ideas or be involved in other research. This past summer I included 2 former students in my work at NASA, they were exposed to the high level computer environment there and were able to participate in finding solutions to questions in space colony design. In this connection it has also been valuable to have industry people coming into the classroom to share some of their challenges. Additionally students have been able to connect with engineers via computer modem on-line.

My contributions to a potential summer employer stem from my years of business and industry experience and my dedication to doing a good job. I have developed engineering skills of different types, running and trouble shooting complex instrumentation systems in the oil fields, managing a crew and equipment under tight time constraints to get the job done in that environment. In the oil business as well as during the past 10 years working and occasionally testifying as an expert witness in scientific accident reconstruction, I have honed skills of careful measurement, data analysis and communication of my findings and ideas.

I am keenly interested in science and in the progress of technology. Working in industry gives me a chance to become up to date and to contribute in a variety of areas. Currently my students and I are benefitting from my summer '93 IISME experience in several ways. These include having speakers come to our class from NASA in the areas of virtual reality, agriculture in space and propulsion systems. My NASA mentor and I are planning an extended unit in which the students will participate in a space station design contest. As someone with a background in this work he will give some guidance to the students and will act as a credible judge to evaluate contest results. I also conduct a weekly class for gifted and talented education students taking advantage of industry contacts for projects envisioned by these high achievers. In general the IISME experience has given me an in-depth base in areas of science that many of my students are interested in. This in turn gives the students a more profound connection to their futures in this arena.





Tug Sezen

## PERSONAL STATEMENT

I teach both Physical Science and Mathematics. The atmospheres in my classes are supportive, friendly and positive. The student population that I serve is diverse, from highly motivated, gifted students to at risk students. I am genuinely interested in the success of all my students in Math and Science. In order to achieve this I actively search for new ideas and methods that I could bring to my classroom. Some of these ideas have come from professional conferences and workshops. However, my most valuable resources have come from my industry experiences as an IISME and Dept. of Energy fellows. Sharing these industry insights with my students has made the curriculum relevant to them and has highly motivated them. I am able to show my students how science and mathematics are used in "real world". I have further shared my experiences, and industry insights with my colleagues at the high school, district and County level.

I have developed a unit on fluid dynamics and aerodynamics for my Freshman science class, based on my experiences at NASA-Ames. My students, with the aid of many computer programs that I developed at NASA, design a glider. They test their design on a wind tunnel designed and built by me. Then based on their research, they construct a glider from balsa wood, and we test their designs in actual flight and compare flight data to theoretical expectations. My students explore computational techniques by becoming a "node" in space with some boundary conditions in temperature. Each student "node" calculates temperature changes as the time progresses, and we use color charts to visualize these changes. I have also developed many activities, "problems of the week" for my math classes utilizing these experiences.

My students also have been working on a project where they design a future space colony based on scientific principles and extrapolation of present technology. At present I am developing a hypercard stack that will help my students in their design efforts. I am collaborating on this project with a NASA scientist through weekly conversations. We are planning also a statewide competition on design of space colonies.

Many of my students have been involved in state science fair projects and some of them have been very successful (First place in the Bay Area, third place in State). This year they are also working on science fair projects dealing with aeronautics.

Recently as a mentor teacher, I am designing curriculum materials and hands on activities for 6-9 grade science classes. I have also made use of the resources like videos, printed materials, graphics. After I shared my experiences with my colleagues, our science department made a proposal to have modem links to Internet in all science classrooms and use telecommunications in our science classes.

I could bring to an industry job much enthusiasm and eagerness to learn from the experience. I am able to work independently with minimal assistance and consider myself a fast learner. During summer of 1993 and 1992 I was a IISME fellow at NASA-Ames. In summer of 1991, I was a Teacher Research Associate ,through a fellowship by Department of Energy, at Sandia National Laboratories. I gained experience on Sun and Silicon Graphics workstations, unix, telecommunications and visualization software. I also gained good background in vacuum systems, accelerators, ion beam optics, and x-ray

spectroscopy. I also had the opportunity to work with visualization software being developed at NASA-Ames and used Internet as a research tool. I own a Macintosh computer, use them regularly in school and consider myself an advanced user and hypercard programmer in this platform. I do have good background in physics, organic and inorganic chemistry, biology and mathematics. I also have solid management experience prior to teaching and have good organizational, communication skills.

My main interest in seeking this fellowship is to gain further insight into the needs of the industry for its future workforce. I think it is very important for our math and science instruction to coordinate our curriculum with the needs of the industry and to carry out needed reforms. I also like to bring fresh industry perspectives to my school and share my experiences with my colleagues. I am interested in professional growth and new resources that could only be gained from a working experience in the industry. To this end, I would welcome the opportunity to work in any kind of industry job. Thank you.

Sincerely,

Tug. M. Sezen

A handwritten signature in black ink, appearing to read 'Tug. M. Sezen', written in a cursive style.

Enthusiasm is the first word that comes to mind when I think of my teaching strategy. I would hope that the students are as enthusiastic about learning mathematics as I am about teaching mathematics.

I first became interested in computers in the 70's. I saw the potential for visual learners. If only the students could see the relationships between the equations and their graphs!! If only the students could see real world applications for their mathematics!! "Seeing is believing". I began writing my own programs and problems for class because I could not find enough good software and problems that I felt actually grabbed the students. We discussed football, ferris wheels, tidal waves and many other interesting problems. The students became "active learners".

Technology is the future of education and should serve as an integral part of learning. The potential of this dynamic strategy is unlimited. Through the Internet, we at Monta Vista High School, have opened up another avenue of the learning environment for students and teachers. Technology must improve the student learning, improve communication and improve productivity. The last two have been met, but I believe the first (improve student learning) needs to be continually addressed.

The Internet meets this goal. Last summer I worked with Rich Amlin to produce "The Teachers Guide to the Internet". We developed tutorials, organized resources by curriculum area, wrote lesson plans for many curriculums, and created a 300 page document which will be on the Internet in the fall. NASA helped to fund our shared project through an IISME project. The benefits I received from working as an IISME fellow last summer was twofold: it gave me someone to share concerns, frustrations, joys and inspirations with; and it gave me time to interact with other teachers from other schools around the world.

One frustration we realized from our experience was that we tried to do too much. The Internet was so new to us that there was no way to accomplish our goal in just the 4 weeks allocated to each of us. But it was extremely rewarding to find another avenue for our students to explore.

We have created a class this year at Monta Vista using the Internet. Students are learning to travel the Internet, do research, and talk to people all over the world. It is a great experience for us.

I have already given an inservice to teachers of Science and Math at our school and Rich and I plan to give other workshops to the other four schools in the district. My Computer Programming class has also traveled the Internet looking for solutions to projects and students to work with creating really ~~complicated~~ ~~like programs~~ to make contacts with industry and to experience what is taking place in the forefront of technology today. Working with IISME last summer was one of the best learning experiences in which I have been involved. I would like to 'finish' my work this summer.

Rich Amlin and I would like to work on the Internet again this year. We would revisit and revise our document from last year, and create new lesson plans and resources for the major curriculum areas.

Bob Zafran

**Usage of previous IISME experiences:**

My summer experiences have included technological research, organizational planning and inventory management, materials testing, and restructuring of manufacturing processes. I have learned that many skills that I obtained during these fellowships have been used in other areas. My career expertise coupled with newly mastered skills provide me with the flexibility to work in almost any industrial, managerial, or technological area or science discipline.

I would hope to continue to benefit from another IISME Fellowship. I was among the group of ISSME Fellows to organize and implement the current IISME Academy program, making the first presentation at the initial IISME Academy meeting. I subsequently developed that presentation into a curriculum unit that I have shared with other teachers and still use today in my classes. As a result of my Fellowship at Hewlett-Packard in 1987, I developed a curriculum unit on photolithography which I have used in my classes and have presented to over 300 secondary and college educators, locally and nationally. MY 1993 IISME experiences at NASA Ames afforded me the opportunity to develop curriculum materials in Computational Fluid Dynamics at the middle/high school level which has been distributed at the local, state, national and international level to educators. I plan to establish a Telecommunications Center at my school that will allow students and staff to communicate electronically to students and agencies, as well as utilize the on-line resources available through Internet and other electronic networks. I trust that future professional development and classroom material will be a direct outcome of my participation in the upcoming IISME program.

Teachers can no longer simply tell students that they must learn something "because they will need or use it in the future"! Everything that is presented in the classroom must have relevancy to each student. Being able to directly relate your personal experiences to the curriculum material at hand is an essential component of each teachers methodology of instruction. The opportunities presented by an IISME Fellowship provide the means to directly associate science and mathematics with curriculum objectives. During my 1994 ISSME assignment, I hope to directly involve students that I will have in classes the coming school year. This will allow those students to in-turn involve their classmates and hopefully expand the impact of their experience. After all, reality sets the best stage for learning!

# Summer fellowship puts teachers to work

Extra San Jose Mercury News 8/25/93

JUST ASK Nadine Hegberth how her summer as an ISME fellow compares with other education experiences she's had as a high school teacher, and she'll tell you quite simply: "It doesn't."

It doesn't because ISME, which stands for Industry Initiatives for Science and Math Education, is something different from your standard fellowship program.

True, it does take teachers out of the classroom, but instead of placing them in another classroom, it puts them in the workplace, not as casual observers but as bona fide participants.

For eight weeks, fellows work at any one of a number of local companies or government agencies, receive a small stipend and are matched with company mentors to ensure that everything goes smoothly. Part of their fellowship time is also spent developing ways they can take their industry work experiences back to the classroom.

It's really beyond the scope of what a regular teacher might do, said Hegberth, who teaches math at Palo Alto's Gunn High School. Sometimes when we're



**SCHOOL SCENE**

Lori Arundt

teaching, we don't pay attention to the real world. It made me think."

Hegberth worked at Canon, the folks who make copiers and cameras, as a product tester — a job that also involved finding new, never-discovered ways to crash the computer system, she said with a laugh.

ISME was created in 1986 as a way to improve links between education and industry. Today, more than 75 Bay Area companies and government agencies, including Silicon Graphics, Safeway

and Mountain View's NASA Ames Research Center, host program fellows. The Lawrence Hall of Science at the University of

California, Berkeley, is a co-sponsor.

ISME's executive director, Marie Earl, said more than 20 percent of Bay Area high school, math and science teachers have taken advantage of the program.

ISME organizers are hoping to encourage more middle and elementary school teachers to participate in the summer program.

"We're finding that students start ruling themselves out of math and science careers really early on," Earl said. "This way we hope there will be someone to encourage them to keep at it."

**GO FIGURE:** While you're at it, you might want to ask Elizabeth Schwartz, a student at Menlo School, how she spent her summer break. Try hobnobbing with the world's top math and science students at a prestigious American university. Elizabeth was one of 60 U.S. students chosen to

learn up with 22 international students from places like Albania, Bulgaria, Egypt, Israel, Korea and Jordan for a six-week program of seminars and hands-on research, sponsored by the Virginia-based Center for Excellence

in Education. This is the 10th year of the program, which is held at the Massachusetts Institute of Technology and open to the top 1 percent of science and mathematics students. The program also has more than just Eliza-

**“Sometimes when we're teaching, we don't pay attention to the real world.”**

—Nadine Hegberth, teacher at Gunn High School

abeth to provide a California connection. Gayle Wilson, Gov. Pete Wilson's wife and a Phi Beta Kappa graduate in biology from Stanford, heads the center's board of trustees.

**JUST A NOTE:** Floyd Gonella, San Mateo County's superintendent of schools, has been elected president of the California County Superintendents Educational Services Association — a long name for the group that represents each of the state's 58 counties.

ly offices of education.

Gonella, who has served as San Mateo County's superintendent since June 1990, formerly served as the head of the Jefferson Union High School District, which includes schools in Daly City and Pacifica.

He'll begin his one-year presidential term in January 1994, finishing out the term of Marvin Adams, superintendent of Sonoma County who stepped down earlier this year. Though CCSESA is celebrating its 100th anniversary, it's far from retirement — the association continues to be a strong link between the state and local school districts. The group's most recent project involves writing a position paper on the school choice initiative — sure to be one of the more exciting issues on November's ballot.

Lori Arundt writes about topics and issues of interest to Peninsula schools each week in School Scene. If you have a school-related topic or event, call her at (415) 940-4466, or write School Scene, Mercury News, 2570 El Camino Real, W. Suite 216, Mountain View, Calif. 94040. Fax: (415) 940-4466.

## Industry pitches in

Since 1985, the Hall's IISME program (Industry Initiatives for Science and Math Education) has been placing high school math and science teachers in paid fellowships with industry for eight weeks every summer. IISME's founders aimed to address the critical need for a strong, highly skilled workforce in mathematics, science, and technology.

To date, about 20 percent of all high school math and science teachers in the Bay Area have been IISME fellows, and they in turn have reached about half a million students with their new found, hands-on knowledge of how and what to teach.

This summer, 76 teachers were IISME fellows, working for such companies as Pacific Bell, NASA Ames Research Center, Hewlett-Packard, ROLM, and Chevron. Funded by over

70 participating companies and various government agencies, the program is a win-win-win proposition: companies benefit from the enthusiastic, objective input of teachers;

teachers are motivated and rejuvenated by what they learn in industry; and students benefit from what their teachers learn about succeeding in today's workplace.

Says Judy Young, a four-time IISME fellow and now peer coach: "The fellowships have helped me rediscover

why I want to be a teacher, and to be a better one. When I talk with students, they sense that I know what I'm talking about. Since budget cuts have eliminated counselors in our district, I can help them with the career knowledge I've gained."

David Mumane, a biology teacher at Pittsburg High School, was an IISME fellow at Dupont in Antioch this summer. His assignment: help

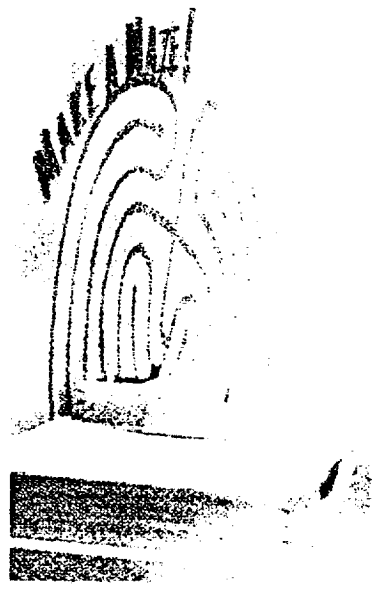
The Hall places high school math and science teachers in paid summer fellowships with industry around the Bay.

create a wetlands preserve on land owned by the company.

Jack Aiello, a math teacher in San Jose, was one of eight IISME fellows at Syntex. He worked on forecasts for marketing research and, for his "action plan," revised a unit of Math A curriculum for his school district. (IISME fellows spend about 10 percent of their time creating "action plans" for their districts, sharing them with other IISME fellows throughout the year.)

Despite layoffs at several of the sponsoring companies, IISME fellows are still being hired at \$700 a week. Fellows are matched with an industry mentor and also receive support from a veteran IISME fellow/peer coach.

This year, the US Department of Education recognized IISME for its contributions to improving American education. ▲



Hands-on activities are a trademark of the Hall. Here, friends create their own maze.

